

## ABSTRACT OF THE DISCLOSURE

A battery energy balance circuit and a battery charging bypass circuit is disclosed for batteries being charged at the same time to be charged equally. When the terminal voltages of the batteries are different, a controllable power device switch in the circuit  
5 switches on and off at a high frequency in order to reduce the input current to the batteries with higher terminal voltages and to increase the input current to the batteries with lower terminal voltages, achieving the goal of equal charging. The disclosed energy balance circuit can avoid damages to the batteries as a result of overcharging. When the number of batteries increases, one can expand the system in a modularized way to prevent  
10 inconvenience of circuit designs.